

# Appendix A

## NL INDUSTRIES\TARACORP GRANITE CITY, ILLINOIS RESPONSIVENESS SUMMARY

### I. RESPONSIVENESS SUMMARY OVERVIEW

In accordance with CERCLA Section 117, a public comment period was held from January 10, 1990 to March 12, 1990, to allow interested parties to comment on the United States Environmental Protection Agency's (U.S. EPA's) Feasibility Study (FS), FS Addendum, and Proposed Plan for a final remedy at the NL Industries\Taracorp Superfund Site. At a February 8, 1990 public meeting U.S. EPA presented the Proposed Plan for the site, answered questions and accepted comments from the public.

### II. BACKGROUND ON COMMUNITY INVOLVEMENT

The NL\Taracorp Superfund site occupies almost 16 acres at 16th Street and Cleveland Boulevard in Granite City. There are areas near the site that are mostly residential and these areas were found to contain lead levels which could be a health threat to the community. An estimated 55 city blocks could be included in the area to be remediated.

ISSUE # 1: Some of the local officials and homeowners are not convinced that a health threat really exists. There is no current standard set for lead in soil. These local officials and homeowners are questioning the recommendations set by ATSDR and adopted as guidance by U.S. EPA. There is a request for blood lead testing to be conducted on the residents in the site area to determine if any actual health effects exist. The officials and homeowners say this would be a way to determine the course of action.

ISSUE # 2: Local officials and some homeowners are concerned with an adverse impact on economic development and property values. This contingent says that too stringent of a cleanup value is being placed on the site and that this is exaggerating the situation out of proportion.

ISSUE # 3: Some residents living directly adjacent to the site are anxious for U.S. EPA to take action. They say that some officials and property owners are more concerned with economic issues than people's health.

ISSUE # 4: Some residents object to collecting the contaminated material and leaving it in a pile with the already existing pile on site.

ISSUE # 5: As stated in a previous issue, there is no current standard for lead in soil. Potentially Responsible Parties for the site are arguing against the 500 ppm residential cleanup recommendation of U.S. EPA's Proposed Plan, saying hard data backing up this recommendation is lacking.



These issues were identified during a February 8, 1990 public comment meeting and are reflected in the transcript of the meeting. Public comments received orally during the meeting and in writing during the comment period also reflect these issues.

The following categories include the summarized responses to the above issues.

1. GENERAL
2. TECHNICAL
3. HEALTH
4. LEGAL

The comments are paraphrased in order effectively summarize them in this document. The reader is referred to the public meeting transcript and written comments which are available at the public information repository.

General

- G1. A handful of comments received asked that the contaminated areas be cleaned up with no specific reference to an alternative. These comments were supportive of non-specific action and some asked that the residents be kept informed of the process and work progress.

The U.S. Environmental Protectional Agency (U.S. EPA) Region 5, acknowledges the comments and support of action at the site. As the project progresses, U.S. EPA will distribute information to the community through a variety of ways, such as press releases, newspaper advertisements, direct mailings and informational meetings, either formal, or informal, depending on the need. U.S. EPA has established an information repository where documents and information about the site can be found. It is located in the Granite City Public Library, 2001 Delmar Avenue, Granite City, IL.

## HEALTH-BASED COMMENTS

EPA has received six public comments on the proposed Record of Decision which address the risk assessment and/or health impact to the residents of Granite City posed by the NL/Taracorp Superfund site at Granite City, Illinois. These comments and the EPA response follows.

H1: We received an extensive comment (49 pages plus exhibits A-D) from NL Industries on the proposed clean-up plan for the NL/Taracorp Superfund site. Their comment is attached to this responsiveness summary. The U.S. EPA response is presented in two sections. The health-based portions of the comments are addressed below, and the technical portions comprise comment T6 on page 10 of this responsiveness summary. In summary, NL Industries maintains that their recommended remedial action, alternative D, fully complies with EPA's interim guidance on establishing soil clean-up levels at Superfund sites, and moreover, that it supports a clean-up of areas with soil lead levels above the 1,000 ppm level as being fully protective of public health. They identify children as the group which has been shown to be the most sensitive to lead. They document their conclusions with a three-prong "risk assessment" approach: a review of the blood lead survey data collected by the Illinois Department of Public Health (IDPH) in April 1983, a risk assessment prepared by O'Brien and Gere Engineers, Inc. using a modification of the outdated Acceptable Daily Intake (ADI) approach, and an abbreviated review of post-1980 literature on lead exposure which they used to identify the slope of the relationship between soil lead and blood lead levels in children.

Secondly, NL Industries refutes the selection of the remedial action alternative H (a clean-up of soil to the 500 ppm level) proposed by EPA and the Illinois Environmental Protection Agency (IEPA) on the following grounds: in support of this clean-up level, EPA used irrelevant vegetable consumption data, the pre-1975 Madhavan et al. study data on lead exposure to derive the relationship between soil/dust lead levels and blood lead levels, the work plan for the Cincinnati Soil Lead Abatement project which has no bearing on Granite City conditions, and Superfund Records of Decision (RODs) prepared for other, dissimilar sites.

U.S. EPA Response: A careful reading of the public comment prepared by NL Industries and of the Risk Assessment prepared by O'Brien and Gere as part of the Remedial Investigation report for the NL/Taracorp Superfund site is necessary to comprehend the concerns presented. It is understandable that NL Industries objects to the 500 ppm lead in soil clean-up level, given the information presented. NL offers three "risk assessments" in defense of their proposed 1,000 ppm soil clean-up level.

The first approach, the use of blood lead survey data collected by IDPH in 1983 to justify a soil lead clean-up level is flawed in many respects: a final report of this survey was never prepared by IDPH and the conclusions reached by the contractors for NL Industries using this data are therefore suspect; the commenters use a combination of elevated blood lead levels and elevated levels of free erythrocyte protoporphyrin (FEP) in blood to delineate an adverse health outcome in children while a literature review indicates that

FEP, which is an indicator of deranged heme synthesis, is a poor indicator of blood lead levels and other adverse health effects; Rabonowitz et al. (Arch. Environ Health 1984) have shown that blood lead levels are not stable and caution against the use of a single measurement to evaluate lead exposures.

The second approach, the risk assessment prepared by the NL Industries' contractors is also flawed. It uses a modification of the outdated Acceptable Daily Intake (ADI) approach, citing the new Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A), December 1989 and the approval of EPA's Environmental Criteria and Assessment Office (ECAO) as justification for this approach. O'Brien and Gere has misunderstood that toxicity values derived in such a manner must be approved on a case by case basis before being used. The use of the derived modified dose in this risk assessment is erroneous. A major flaw in this risk assessment is that it fails to identify the critical population at risk, the child under the age of six years, and instead presents the chronic risk to the adult population using a lifetime exposure to lead in soil. While the soil lead exposure does continue over a lifetime, the most sensitive endpoint is the subchronic effects seen in developing children. To dilute this effect over a lifetime exposure of 70 years greatly underestimates the risk to children and is completely unacceptable to EPA. If the risk assessment were to be done using the derived toxicity values as applied to the most sensitive population, children under the age of six, a clean-up level below 500 ppm lead in soil would be warranted, as has been demonstrated in risk assessments prepared for other lead smelter sites. EPA rejects this approach in favor of other site-specific approaches presented in Appendix B.

The last approach to justify the soil clean-up alternative D, the use of three of the lowest slope factors abstracted from the literature to derive the relationship between soil lead levels and blood lead levels appears to be a concerted effort to obscure the issue. A literature review quickly shows that a myriad of slope factors for the soil/blood lead relationship have been proposed, ranging from 1.1 to 7.6 micrograms per deciliter blood lead per 1,000 ppm soil lead. In general, the slope factors from mining sites can be shown to average approximately 2.0, which is about half the average slope from smelter sites (the median slope factor is approximately 4.0). The slope relationship, at best, emphasizes correlations. These estimates make no assumptions about exposure, bioavailability, the age range of the population studied, and so on, which makes the derived slope factor relationship tenuous. Ongoing studies supported by EPA are presently underway to further delineate this relationship. Until more conclusive data is available to support a blood/soil lead relationship, EPA rejects a risk assessment approach which relies on slope factors.

In conclusion, the three "risk assessment" approaches proposed by the contractors for NL Industries fail to identify a risk at all to children living in the area of the NL/Taracorp Superfund site, and are fundamentally flawed and unacceptable for use to establish a soil lead clean-up level for the NL/Taracorp site.

The second set of comments address the EPA selection of remedial action alternative H. NL Industries misunderstands the criteria which were used by EPA to determine the need for a 500 ppm lead in soil clean-up level at the NL/Taracorp Superfund site. This goes to the basis for rejecting the 500 ppm soil clean-up level. For a discussion of the factors used to determine the proposed clean-up level, this commentor is referred to the position paper presented in Appendix B. Comment is required on two issues that will not be

addressed in the position paper. The first is the suggestion that the work plan for the Cincinnati Soil Lead Abatement project was used by EPA as support for alternate H. This is totally erroneous as results from the Cincinnati project are not expected to be available until June 1992, long after remediation at the NL/Taracorp site is underway. Data from the Cincinnati project, as well as the Baltimore and Boston projects, have been used to test the Integrated Lead Uptake/Biokinetic Model which is expected to replace the Reference Dose for evaluation of the toxic effects of lead. Secondly, other RODs have not been used to select the clean-up level for the NL/Taracorp Superfund site, although the conditions at several other sites across the country suggest that the use of similar risk assessment methodology would advocate a similar clean-up level. Other RODs have been consulted to demonstrate a trend of more stringent soil lead clean-up levels across the country.

In general, we disagree with the conclusion that the CDC blood lead level of 25 micrograms per deciliter or the proposed 15 micrograms per deciliter can be considered as a threshold effect level for lead. Health effects at the 10-15 micrograms per deciliter level have been well documented in numerous publications by Needleman et al. A report by Schwartz and Otto in 1986 suggests that blood lead levels as low as 5 micrograms per deciliter may be associated with minor hearing problems. EPA does agree with the comment from NL Industries that the incorporation of the Biokinetic Model and other generic and site-specific data into the development of clean-up levels for lead are appropriate.

H2: We received a comment from the Tri-Cities Area Chamber of Commerce stressing that the issue of what the proper clean-up level at the NL/Taracorp Superfund site must be resolved. They maintain that only a site-specific risk assessment can properly address this question. They have requested that only areas that have been proven to pose a health hazard be cleaned-up, and that the clean-up begin at once and be completed as soon as possible.

U.S. EPA Response: EPA agrees that the clean-up level for lead at Superfund sites should be carefully chosen and suggests a range of values (from 500 to 1,000 ppm lead in soil), with the choice within that range to be dictated by the site-specific characteristics of the site (OSWER Directive # 9355.4-02). Traditional risk assessments have been difficult to carry out for sites containing lead as a contaminant due to the inability to determine a safe level for lead in soil under all conditions. Where risk assessments have been used for this purpose, the calculations are sometimes suspect and have resulted in soil clean-up levels down to 200-250 ppm lead in soil in some cases. EPA used site-specific considerations in the setting of the 500 ppm soil clean-up level at the NL/Taracorp site. However, EPA believes that a better approach for determining the proper clean-up level at Superfund sites is through the use of models, which are discussed in the position paper in Appendix B. The use of a favored model, the Lead Uptake/Biokinetic Model, demonstrates that approximately 34% of the Granite City children under the age of six will have blood lead levels greater than 15 micrograms per deciliter if the 1,000 ppm clean-up level for lead in soil is allowed. This would put 34% of the children above a level that may represent a risk of adverse health effects.

H3: We received one comment from a Granite City resident who is extremely concerned over the health hazards presented by the lead in the soil in the Granite City, Madison and Venice area. He has made an effort to read the material deposited by the EPA in the reading file and has consulted with four professors at major universities regarding the problem. He accepts that recent studies show a multitude of adverse health effects in children associated with blood lead levels greater than 10 micrograms per deciliter. He is aware that the clean-up proposed by the EPA is not aimed at reducing soil lead levels to those thought to be necessary to reduce the blood lead levels of children below 10 micrograms per deciliter, and he questions whether the EPA proposed clean-up will be fully protective or leave large numbers of children at risk to lead poisoning. He urges EPA to begin an immediate testing of all locations in the area where children play and inform parents as to the dangers that exist there.

U.S. EPA Response: This resident has also learned of a report being prepared by the Society for Environmental Geochemistry and Health (SEGH) Task Force on Lead in Soil and believes that the report to be released this summer will give further input on this problem. He requests that EPA refrain from making a decision on the soil clean-up level until that report is released.

At present, the National Centers for Disease Control (CDC) has determined that blood lead levels equal to or greater than 25 micrograms per deciliter represent a reason for concern. CDC is now considering a level of 15 micrograms per deciliter to protect for the health effects seen at lower blood lead levels. EPA has also adopted this "action level" for the purpose of the clean-up at Granite City because the significance of changes seen in children at blood lead levels below 15 micrograms per deciliter are not yet understood. The EPA is the funding agency for the SEGH Task Force on Lead in Soil, whose report will probably be made public at the SEGH Meetings to be held in Cincinnati in July. However, the study by the SEGH Task Force is just one of many efforts currently underway to delineate the impact of lead in various media on the health of young children. The SEGH Task Force on Lead has recommended the use of a lead soil matrix formula, which will allow a variety of environmental factors to be considered in the development of a site-specific evaluation of lead hazards. Another tool, the Lead Uptake/Biokinetic Model, is also under evaluation and is expected to be released to the EPA Regions in April 1990. The Biokinetic Model is expected to fill the deficit caused by the withdrawal of a reference dose to assess the health effects of lead. The model is more fully described in the position paper on lead presented in Appendix B. When site-specific data collected in Granite City and a soil lead level of 500 ppm is input into the Biokinetic Model, a mean blood lead level of 8.37 micrograms per deciliter is predicted, with approximately 8.5 percent of the children predicted to attain blood lead levels greater than 15 micrograms per deciliter. EPA believes that the clean-up level of 500 ppm lead in soil is appropriate because further reductions in food lead levels are anticipated due to the removal of lead-containing soils and to the reductions in allowable releases of lead to the air and in the water expected from changes to the National Ambient Air Quality Standard and the National Primary Drinking Water Regulations later this year.

H4: We also received a comment from Bobby G. Wixson, Dean of the College of Sciences, Clemson University, South Carolina; He is one of the professors

solicited by the above Granite City resident and the Chairman of the SEGH Task Force on Lead in Soil. He stressed that the task force remains convinced that a matrix approach to a site-specific location and population at risk be used rather than a single number or abatement approach applied to all sites, and he provided a copy of the May 1989 presentation on the status of the SEGH Task Force in which the matrix approach was presented. He voiced a concern that Region V not adopt a 500 ppm lead in soil level as an interim guideline without knowledge of the target blood lead soil matrix model. He advised that the clean-up level might actually be higher or lower than 500 ppm if based on the health criteria used to derive the SEGH model.

U.S.EPA Response: While the Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER Directive # 9355.4-02) sets forth an interim soil clean-up guideline for total lead in soil at 500 to 1,000 ppm, it also allows that "site-specific conditions may warrant the use of soil clean-up levels below the 500 ppm level or somewhat above the 1000 ppm level". This latter clause has recently been used to set a residential soil clean-up level at 250 ppm in another region. The use of the SEGH Task Force matrix model is one method for achieving a site-specific guidance level for clean-up. However, recent and frequent conversations with the EPA Office of Research and Development concerning this matter indicate that the model favored by that office is the Lead Uptake/Biokinetic Model, which has already been largely validated. When site-specific data from the NL/Taracorp Superfund site are used in that model, a cut-off soil lead level of 500 ppm can be shown to be appropriate for the Granite City site clean-up. Actual parameter values used in the model can be found in Appendix B.

H5: We received one comment from a Granite City resident who had chronicled a history of multiple deaths due to cancer and heart disease in her family and in her husband's family. She expressed a concern that this history of disease was directly tied to the lead and other foreign particles in the air and in the ground in the area. She believes that "there is a clear and present danger" due to the lead in the soil and urges that the EPA clean-up project begin immediately.

U.S. EPA Response: This resident's concern that this history of family illness is related to the lead and other foreign chemicals in the air and in the ground is probably warranted. One of the primary concerns of the EPA is that residents of highly industrialized areas are exposed to a complex mixture of toxic chemicals, which can enter their bodies from the air, water, contact with soil and food products. In addition, personal habits such as smoking and over-eating, genetic factors, and exposures received in the workplace further predispose the body to diseases such as cancer. With so many factors operating to cause some types of cancer, it is difficult to trace any particular incidence of cancer in this resident's family to a single cause without careful documentation. However, the concentration of toxic pollutants in the air, water and soil have sometimes reached very high levels in the past. The EPA has strived in recent years to reduce the levels of such pollutants and their related health effects. In Granite City, we will continue to pursue whatever clean-up is necessary to reduce the danger to these residents from exposure to lead in the soil, and we will make every effort to move forward with this clean-up with expediency.



H6: We received a comment from the Illinois Department of Public Health, which offered four points for consideration. Their primary concern is that they have been told that a risk assessment could not be performed at the NL/Taracorp Superfund site because an EPA verified Reference Dose for lead is unavailable, and they object to that premise. Secondly, they question the use of a generic clean-up level in the range of 500-1,000 ppm lead in soil, arguing that this is a CDC generated level and CDC itself has often not recommended soil removal until the lead level reaches levels as high as 5,000 ppm. They argue that the use of a generic clean-up level sets a dangerous precedent which allows IDPH to propose multiple other sites in the area for inclusion on the Superfund list. They go on to suggest that biomonitoring of the population in the form of repeated blood lead level testing of area children, testing of domestic animals (dogs and cats) residing in the area, and such could be used to resolve the issues of risk assessment and clean-up objectives, and they urge that a carefully designed and implemented biomonitoring program be instituted in Granite City. Their final comment addresses the perceived need for an educational effort to answer questions raised by citizens and urges that an integrated joint effort between agencies be used to answer citizen concerns.

U.S. EPA Response: The concern that a traditional Superfund structured risk assessment cannot be prepared for the NL/Taracorp site has already been discussed in the response to the comments from NL Industries (H1) and the Tri-Cities Chamber of Commerce (H2). Region V agrees with the rationale that a generic clean-up level should not be used at any Superfund site, and that site-specific factors such as populations at risk, bioavailability, etc. should be considered in setting such clean-up levels. The comments and responses presented in H3-H5 and in Appendix B suggest the approach that EPA believes is reasonable to address this concern. EPA strongly disagrees with the premise that the clean-up at hazardous waste sites should be limited because such a clean-up may set a precedent for the potential clean-up of other areas which have become contaminated through other routes. EPA recognizes that there may be other lead contamination problems in Illinois, and encourages that other such sites be identified and assessed for inclusion on the NPL. This, however, is not a comment that is specific to the NL/Taracorp site. Clean-up levels below 500 ppm have been accepted at other sites. In response to the third comment set forth by IDPH, EPA is not adverse to the biomonitoring of sensitive populations exposed to soil lead in the Granite City area and suggests that women of child-bearing age as well as children under the age of six be especially targeted for a biomonitoring program. A blood lead study has been added to the selected remedy in response to public comments. However, EPA believes that the soil lead levels at the NL/Taracorp site represent an present and on-going hazard to these segments of the population and is reluctant to postpone any remedial activities in favor of a data-gathering endeavor. IDPH's suggestion that an educational effort is needed to address citizen concerns is a good one. EPA has already delivered, door-to-door, one Lead Guidance Fact Sheet to residents in the area and has begun the preparation of more complete guidance to be distributed before the summer season when children face the greatest exposure to lead in soil. EPA would welcome input for inclusion in this latest flyer. By distributing this information early, EPA hopes to keep soil ingestion and thus, blood lead levels at a minimum during the period required for further soil sampling and the development of the soil removal activities.

### Technical

T1. Two commenters sent U.S. EPA information regarding the locations of other areas around the site where battery case material potentially came to be located.

U.S. EPA Response: U.S. EPA thanks these commenters for providing very useful information. Appropriate follow-up will be taken in these areas.

T2. One commenter requested that material submitted to U.S. EPA be included in the Administrative Record for the site.

U.S. EPA Response: The material was placed in the Administrative Record for the NL Site, and where appropriate, background information regarding Trust 454 was corrected, as stated in the material submitted.

T3. Four commenters stated that Alternative A (No Action) is the only alternative having any merit and that further studies are needed before any action is taken.

U.S. EPA Response: Alternative A-No Action is inappropriate due to the fact that waste materials and soils which may pose a risk to human health and the environment would be left in place without any treatment and that it does not comply with all applicable federal and state laws. U.S. EPA feels that a cleanup level of 500 parts per million (ppm) will be protective of the public health in the area of the NL site. Lead levels in residential areas, the Taracorp pile, and St. Louis Lead Recyclers piles range from 1% to 30%, which is 10,000 ppm to 300,000 ppm lead. It is unacceptable to take no action when people may be exposed directly to lead concentrations of this magnitude. Additionally, allowing the Taracorp pile and St. Louis Lead Recyclers (SLLR) pile, both of which contain characteristic hazardous waste, to remain uncovered is not in compliance with the Resource Conservation and Recovery Act (RCRA). It is not necessary to conduct further studies before a remedial action is selected for this site. Data gathered during the Remedial Investigation are sufficient to indicate that a lead contamination problem exists at and around the NL site, and available guidance and national and site-specific lead data are sufficient to select a residential lead cleanup level for the site. However, further studies, including a blood lead study and extensive soil sampling will be undertaken during the design of the selected remedial action to provide residents with current blood-lead information and to determine exactly which areas must be excavated and to what depth.

T4. One commenter supported the selection of Alternative H and questioned whether residents would be made aware of the results of soil sampling conducted on their properties.

U.S. EPA Response: U.S. EPA acknowledges and appreciates the support for Alternative H. The selected remedy is Alternative H, with five elements added as listed in response to comment T9. Results of soil sampling to be conducted as part of the selected remedy will be made available to the specific residents as well as the community at large.

T5. Three commenters recommended that Alternative G be selected to remediate the NL Site.

U.S. EPA Response: There are advantages to Alternative G, namely the complete removal of all contaminated areas from the Granite City area, which also would remove the vast majority of waste materials which could contribute to future groundwater contamination in the area. However, these advantages are outweighed by the potential for adverse short term health impacts and the increased cost of Alternative G. Due to the nature and wettability of waste materials in the Taracorp pile and SLIR piles, excavation of these piles will generate lead contaminated airborne dust which may create an adverse impact to public health. Although dust suppression techniques can be used to minimize emissions, it is not expected that these techniques will be fully successful in preventing releases to the air from these piles, which are contaminated with up to 30%, or 300,000 ppm, lead. Additionally, transportation of contaminated materials to the nearest RCRA-compliant hazardous waste landfill (which is several hundred miles away) creates the potential for transportation accidents and further releases of dust to the air. The recycling effort included in Alternative G involves manual separation steps which would expose workers to lead contamination. Lastly, the cost of Alternative G is between two and three times that of Alternative H. Ultimately, although Alternative G removes the waste materials from the Granite City Area, the wastes must still be managed at the facility in which they would be deposited. This facility would have a bottom liner and leachate collection system, which would not be provided under the entire expanded Taracorp pile. However, the selected remedy, includes the requirement for a Contingency Plan which would provide for cleanup action if the groundwater becomes contaminated in the future. Therefore, U.S. EPA feels that the selected remedy will provide the same degree of actual protection as Alternative G, and so, is the most cost effective alternative.

T6. One commenter submitted an extensive set of technical comments regarding the Feasibility Study (FS), FS Addendum, and Proposed Plan, which are attached at the end of this Responsiveness Summary. Another commenter incorporated these comments into their own comment.

U.S. EPA Response: (Refer to attachment to this Responsive Summary)

T6a. Paragraph IV. D. of the comment letter is entitled "EPA's Reliance on the Records of Decision to Select A Cleanup Level for the Taracorp Site Contravenes the Interim Guidance and is Scientifically Inappropriate".

U.S. EPA did not rely solely on other Records of Decision (RODs) in selecting a 500 ppm cleanup level for the NL Site. Site specific considerations, studies, and data were used in the selection process; however, as stated earlier in this response, other RODs were useful from the standpoint of

indicating a recent national trend toward more stringent soil lead cleanup levels. The commenter is correct in stating that each site for which a ROD was reviewed has a unique set of conditions and that a direct comparison of these sites to the NL Site was not possible.

T6b. Section V of the comment letter is entitled "Alternative H is neither Cost Effective Nor Technically Feasible". Paragraph A comments on the cost estimate.

The commenter is correct in stating that U.S. EPA's \$25 million estimated cost was not prepared by O'Brien & Gere, NL's consultant, and that U.S. EPA's calculations scaled up the costs developed by O'Brien & Gere for Alternative D. The commenter also states that a 20% deviation in costs during the FS is within the expected range of uncertainty in FS estimates. U.S. EPA agrees with this statement and acknowledges the efforts of the commenter in providing a cost estimate of \$30 million. It is possible that this is a more accurate estimate than \$25 million; however, it must be pointed out that many assumptions, some of which are very conservative (e.g. 100% acquisition of access) are used to generate cost estimates. A more accurate cost will be provided during Remedial Design for the NL Site, when actual numbers based on sampling results and access agreements will be available for variables which are only assumed or estimated at this point. U.S. EPA stands by its estimate of \$25 million for Alternative H at this stage of the project. Elements added to Alternative H as result of public comment have not been costed; however, it is anticipated that, other than contingency measures (see response to comment T9), which will not exceed \$10 million, these additional measures will not exceed \$3.8 million.

T6c. Paragraph B of Section V comments on the implementation time for Alternative H.

U.S. EPA acknowledges the efforts of the commenter in providing an estimate of seven years for implementation of Alternative H. U.S. EPA did not include the period required for Remedial Design in its estimate of 1 1/2 - 2 1/2 years for implementation of Alternative H; this accounts for a discrepancy of one year between the two estimates. U.S. EPA estimated approximately 112,000 cubic yards of soil to be excavate, which is 70% of the 160,000 cubic yards estimated by the commenter; this accounts for a discrepancy of approximately 1 1/2 additional years between the two estimates. U.S. EPA did not add in the excavations of Venice and Eagle Park Acres as an additional time period; it was felt that these excavations could occur concurrently with those in Granite City and Madison. This accounts for an additional discrepancy of approximately 1/2 year. Subtracting the above mentioned discrepancies for the commenter's time estimate yields a resultant estimate of four years.

The remaining discrepancy between the two estimates stems from the estimate of the number of crews that can reasonably work on the project at any given time without creating traffic problems, etc. This is a judgment call, and U.S. EPA felt that more crews could work at any given time than did the commenter. As a result of this comment and additional review of the situation, U.S. EPA has changed its estimate to 2 1/2 years, eliminating the

range of time (1 1/2 - 2 1/2 years) presented in the Proposed Plan. The elements added to Alternative H as a result of public comments will not change this time estimate for construction.

T6d. Paragraph C of Section V comments on the technical infeasibility of implementing Alternative H.

As part of the selected remedy, additional property must be acquired, or the material must be disposed of off-site. Trust 454 property is better suited for the expanded Taracorp Pile since only a small portion of Trust 454 that would be needed for the pile would be at the outer edge of the 100 year flood plain. The affected area on Trust 454 is not in the "floodway", so no additional permits would be required; it is, however, at the very edge of the portion of the 100 year flood plain which is marked as "minimal flooding". From the map, it appears that during a 100-year flood event the water would come right up to the edge of the expanded Taracorp pile, as it would to the existing Taracorp pile and the SLIR piles. If necessary, barriers could be built around the south and west sides of the expanded pile; however, even without barriers it does not appear that a 100 year flood event would harm the integrity of the cap or result in any threat of releases into the environment.

The Commenter is correct in stating that the soil lead sampling done to date is not sufficient to delineate all areas around the site requiring remediation. Additional sampling will be performed during Remedial Design to provide this information. The figure identifying areas 4 through 8 in the Proposed Plan represents only a best estimate of areas requiring remediation based on data gathered to date.

T6e. Section V is entitled "Alternative H's Increased Risk to Residents and Adverse Impacts on the Community and the Environment Are Not Justified by the Minimal Protection it Provides."

U.S. EPA disagrees with this statement and the conclusions drawn in this section, with the exception that truck traffic involved in implementing Alternative H increases the risk of traffic accidents, as compared to implementing Alternative D. U.S. EPA has analyzed the short-term impacts involved with implementing Alternative H (i.e. removing approximately 112,000 cubic yards of contaminated soils from an estimated 58 city blocks) as part of the analysis of the nine criteria. Proper wetting of soils and construction and transportation procedures can be employed such that visible dust emissions will be prevented and adverse impact to the community will be minimal. The technology, equipment, and procedures exist to do this effectively. U.S. EPA recognizes the short-term impacts involved in implementing Alternative H and feels that the benefits resulting from the removal of soil contaminated with lead above 500 ppm outweighs these potential impacts. U.S. EPA also feels that implementing Alternative D is inappropriate since Alternative D allows large quantities of lead contaminated soil with concentrations above that which may cause an adverse public health impact (i.e. above 500 ppm) to remain in place. The elements added to Alternative H as a result of public comments will not significantly impact the above response. Only the potential additional excavation in Venice, Eagle Park Acres, and other nearby communities will increase truck traffic, however, this increase is estimated to be minimal.

- T7. One commenter was concerned about future blood lead testing and past IDPH blood lead testing, emissions during construction, the length of time it took to get information to the public about the contamination problem at the site, and further soil testing prior to excavations.

U.S. EPA Response: The results of soil lead testing were released to area residents in 1988, prior to the release of the RI Report. The RI Report was released in early 1989. An availability session was held in October 1988 to discuss the results of soil lead testing with residents. Although several local politicians attended, no residents came. During this public comment period U.S. EPA discovered that using the local newspaper and other media does not effectively disseminate information in the affected communities around the NL/Taracorp Site. Information was provided effectively by handing out fact sheets door-to-door, and this practice will continue in the future. So, although the information provided in January 1990 may seem relatively new, U.S. EPA has been providing information through the media as it has become available.

U.S. EPA cannot provide a response for the Illinois Department of Public Health (IDPH) regarding its conduct of a blood lead study in 1982; however, in response to public comments received, U.S. EPA has added the requirement for a blood lead study to the selected remedy. The study will be performed by or in consultation with IDPH during the summer of 1990 and will be designed to provide current information on potential health effects associated with site contamination. Blood lead testing is the most effective means available to determine whether acute effects due to lead contamination may exist in the community.

Dust control measures included in the selected remedy will be implemented during construction activities. These measures, which will primarily consist of applying water to soil to be excavated, will be employed to prevent visible emissions of dust and will minimize any adverse health effects arising during construction.

Regarding additional soil sampling, the selected remedy includes extensive sampling of each yard in the suspected zone of contamination and all applicable alleys, driveways, and yards in Venice and Eagle Park Acres to determine exactly which areas must be excavated and the extent of excavation. This will be performed before excavation begins.

- T8. One Commenter expressed support for Alternative H and asked if any or all houses will be demolished as part of the selected remedy.

U.S. EPA Response: U.S. EPA acknowledges and appreciates the support for Alternative H. No demolition of houses will be performed as part of Alternative H, the selected remedy.

- T9. Three commenters expressed concern over the negative economic impact the selected remedy will have on the surrounding areas, including problems with the resale of property in the zone which has been labelled "contaminated".

U.S. EPA Response: U.S. EPA can understand the concern citizens have for the resale value of property in the "contaminated zone," as well as the economic impact the selected remedy could have on the surrounding areas. The U.S. EPA must, however, consider risks to human health and the environment from the contamination to be our top priority in addressing this Superfund Site.

Bear in mind that the contamination exists no matter what remedy is selected; it is, in fact, the contamination, not the cleanup, that is the true culprit in terms of any real or perceived stigma resulting in lowered property values or negative economic impacts. The selected remedy will result in a cleaner, healthier living environment in the affected areas, particularly in light of the fact that there will not be a continuing source of airborne contamination, and the residential properties will be left with the same or better appearance than they currently have. This should ultimately result in increased property values. Although the Taracorp pile will remain in place and be expanded, after the cap is completed, it will be less of an eyesore and less of a threat to human health and the environment than it has been all the years it has been part of the Granite City landscape.

T10. Two commenters expressed concern about whether public comments would have any bearing on U.S. EPA's final decision on the selected remedy.

U.S. EPA Response: U.S. EPA appreciates the comments it has received regarding its Proposed Plan for cleanup of the NL/Taracorp Site. Five elements have been added to Alternative H as a result of public comments (Alternative H, as amended by the addition of these five elements, is U.S. EPA's selected remedy):

1. Blood lead sampling to provide the community with current data on potential acute health effects associated with site contamination, to be conducted in summer, 1990,
2. Inspection of the interiors of homes on property to be excavated, to identify possible additional sources of lead exposure and recommend appropriate actions to minimize exposure,
3. Inspection and remediation of additional areas of contamination in Eagle Park Acres, Venice, Granite City, and Madison which were not identified in the draft FS Report, and
4. Development of contingency measures to provide for sampling and proper disposal of any soils within the zone of contamination with lead concentrations above 500 ppm which are presently capped by asphalt or other barriers but become exposed in the future due to land use changes or deterioration of the existing use.
5. Construction of a bottom clay liner under newly constructed portions of the expanded Taracorp pile.

T11. One commenter listed a series of questions which are answered below.

- Q. What level of lead is in site area #8 and how much direct contact would it take to become dangerous to my health?

R: The lead levels in site area #8 range from just over 500 ppm to approximately 2500 ppm. It is not possible to determine how much direct contact it would take to become dangerous to the commenter's health. Each individual has a different reaction to lead exposure. U.S. EPA has selected the 500 ppm cleanup level to be protective of sensitive individuals.

Q: Can I send a sample of my yard and have it tested?

R: Each yard which may require cleanup will be tested to determine the depth of excavation required. This test is anticipated to begin in early 1991, so the commenter's yard will be tested then. It may be possible to arrange for some limited testing prior to that time for persons who want to have information prior to 1991; however, nothing has been planned at this time.

Q: Would the residents be allowed to stay in their homes during construction?

R: Yes

Q: Would U.S. EPA have to tear up fences to remove the soil?

R: No, shovels would be used for excavating tight spots, such as fences and along driveways and foundations.

Q: Would trees be damaged by this soil removal?

R: We do not expect any trees to be damaged; however, some shallow roots may be slightly damaged. The excavation would be implemented in a manner to minimize potential damage.

Q: After work completion, would realtors have to mention anything to potential buyers in the area?

R: Yes, under the Illinois property transfer laws, the prior contamination of the property will be documented; however, the cleanup will be also be documented, and this will indicate to potential buyers that the property has been cleaned up to levels which are considered protective of public health.

Q: When would the work start?

R: It is projected that actual excavation activities would begin in later 1991 or early 1992.

T12. One commenter expressed criticism of Alternative H.

U.S. EPA Response: No response is really necessary since no reasons for the criticism were outlined. U.S. EPA appreciates the comment.

T13. One commenter stated that an independent firm should conduct testing to determine the scope of soil contamination before any more hysteria is created without facts.



U.S. EPA response: Testing conducted to date clearly indicated that there is a soil lead contamination problem at and around the NL/Taracorp Site. Further soil testing will be required to determine which yards must be excavated and to what depth. U.S. EPA regrets any hysteria that may have been created during the remedy selection process. Throughout the process, U.S. EPA has clearly stated that the situation at the NL site is not an emergency situation but that cleanup is required to prevent potential chronic health effects that may arise from exposure to contamination at and around the site.

T14. One commenter supported Alternative D, proposed that residence located within the 1000+ ppm zone be purchased, razed, excavated, and that the areas be rezoned as commercial; stated that work should commence as soon as possible; and supported the conduct of a blood lead study prior to the commencement of any work at the site. Another commenter supported Alternative D and submitted a petition with approximately 300 signatures.

U.S. EPA Response: Alternative D is not acceptable because soils and battery case materials containing lead concentrations above levels which may present a risk to public health are allowed to remain in place under Alternative D. This is not an acceptable situation.

Razing and excavating homes is not appropriate. The area can be cleaned up to levels which will be protective of the public health without creating such a major disruption to the residents who live there and without such a high cost. The idea of rezoning certain areas as commercial is interesting but is not within the realm of U.S. EPA's authority, and problems exist with this due to potential disruption of residents who presently live there and the fact that the areas will be cleaned up to protective levels under the selected remedy, making rezoning potentially moot.

U.S. EPA will expend every effort to commence work as soon as possible.

A blood lead study has been added to Alternative H as part of the selected remedy; however, setting soil lead cleanup standards from a blood lead study is not appropriate, for reasons outlined in the response to Comment H1.

Sufficient data have been collected to date to select a cleanup level for lead for this site, and postponing remedy selection for further studies contradicts the above-stated desire to commence work as soon as possible.

T15. One commenter supported a site-specific, risk-based approach for selecting a cleanup level and supported capping of contaminated areas (Alternative B) as opposed to removal of soils.

U.S. EPA Response: To the extent possible, U.S. EPA used a site-specific risk-based approach in selecting the 500 ppm cleanup level for the NL Site. A complete, quantitative risk assessment could not be performed for reasons outlined in the response to comment H1. Given this fact, U.S. EPA used applicable guidance, available data, and site-specific factors, such as the form of lead deposition present, the type of community, and the fact that

residential areas are present around the site, to select the 500 ppm cleanup level.

Capping, as outlined in Alternative B, is not appropriate for residential areas around the site because soil with lead concentrations above levels which may present a risk to public health are allowed to remain in place and can easily become exposed in the future due to gardening, excavation, etc. It is impossible to ensure the integrity of the cap in each residential yard, and removal of the contaminated soil is more protective and appropriate. Capping will also raise the elevation of all capped areas, which may present runoff/erosion problems. Along with monitoring and institutional controls, capping is appropriate for remediation of the expanded Taracorp pile and included in the selected remedy for that reason.

T16. One commenter stated that: 1) all actions on the NL site cleanup proposals be put on hold until blood lead testing is conducted on residents in the designated areas, 2) U.S. EPA has caused severe economic problems for landowners and the City of Granite City, Illinois through inadequate studies and their subsequent release to the public, and 3) the IDPH blood lead study of 1982 did not indicate elevated blood levels in the residents tested.

U.S. EPA Response: Statements 1) and 2) of this comment have been addressed in the response to comments T14 and T9, respectively. The IDPH blood lead study of 1982 did indicate elevated levels in the residents tested and, by the present standards used by toxicologists to evaluate health risks, indicated that some of the residents tested had blood lead levels which would present a health risk. U.S. EPA has questioned the usefulness of the IDPH study.

L1. Comment: Several questions were raised concerning the impact of the clean up on A & K Railroad. The railroad is located near the Site. The commenter believes alternative H should be chosen, with modifications to include industrial areas such as A & K Railroad. The commenter asks (1) who is liable for contamination placed on a site before its present ownership, (2) whether U.S. EPA has jurisdiction over industrial areas located within a Superfund Site, (3) what government agency regulates the health and safety of a company's employees, and (4) what federal government agency should address concerns about toxic levels in the soil, water, and air found at an industrial plant site.

Response: The scope of liable persons under the Superfund law is discussed at 42 U.S.C. §9607(a) (CERCLA §107(a)). Persons liable include but are not limited to the present owner of a facility, the owner or operator of a facility at the time of disposal of a hazardous substance, any person who arranges for the disposal or treatment of hazardous substances owned or possessed by such person, and any person who accepts hazardous substances for transport to disposal or treatment facilities. CERCLA Section 107(b) lists three exceptions to the scope of liability discussed in Section 107(a). The exceptions include (1) an act of God, (2) an act of war, and (3) acts or omissions of a third party. The third defense, however, requires that due care was taken by the party using the defense with respect to the hazardous substance concerned. The party using this defense must have also taken precautions against foreseeable acts or omissions of any such third party and the foreseeable consequences from such acts or omissions.

A Superfund site may include any area, industrial or otherwise where a hazardous substance has been deposited, stored, disposed of, placed, or otherwise come to be located. 42 U.S.C. §9606 (CERCLA §106) grants authority to the Attorney General of the United States to secure such relief as may be necessary to abate the danger of an actual or threatened release of a hazardous substance from a Superfund site.

The Department of Labor is the federal government department which regulates the health and safety of employees. The U.S. EPA, in cooperation with the State Environmental Protection Agency, is the federal agency which addresses concerns about toxic levels of substances in the soil, water and air.

L2. Comment: One commenter challenged both U.S. EPA's selection of alternative H as the appropriate remedy and also U.S. EPA's selection process. The commenter raised concerns that the remedy will cost more than U.S. EPA initially estimated, the remedy will require additional property to dispose of residential soils, short term dangers of choosing alternative H may outweigh the

advantages of alternative D and were not properly considered, and the potential disruption of the community was not properly evaluated by U.S. EPA. The commenter estimates the cleanup may cost \$40 million. The estimate is based on the belief that U.S. EPA underestimated the need for either the purchase of additional property or off site disposal of wastes.

Concerns were also raised regarding U.S. EPA's selection process. The commenter believes U.S. EPA did not properly notify affected parties of the public comment period and U.S. EPA's increased cost estimates for the site, relied on general guidance to determine cleanup levels rather than site specific information, and has failed to offer a better alternative to the risk assessment conducted during the remedial investigation by NL Industries which was rejected by U.S. EPA. The commenter recommends a new, binding risk assessment, raises the possibility of conducting blood lead studies in the affected area, and requests an extended public comment period to evaluate revised proposals.

Response: The commenter's concerns regarding the additional public benefits of choosing alternative H over other alternatives and the cost estimates for alternative H are addressed in response to comment T6.

Affected parties have been properly notified of U.S. EPA's actions throughout the remedy selection process. On December 18, 1989, U.S. EPA conducted an informational meeting to inform potentially responsible parties of available site information. All identified PRPs were notified of the meeting. Information discussed at the meeting included the proposed cleanup standards being considered by U.S. EPA. The meeting informed the PRPs of where U.S. EPA was in the selection process and gave all parties an anticipated time frame for the public comment period, a public meeting to be held in Granite City, Illinois, and the scheduled date for this Record of Decision. Public notice was subsequently given for both the public comment period and the public meeting held in Granite City. U.S. EPA agreed to meet with all parties who requested meetings with U.S. EPA during the selection process. In addition, four availability sessions were conducted in Granite City to further inform the public about the site and respond to any concerns. U.S. EPA extended the final date of the public comment period from February 24, 1990, to March 12, 1990, in response to the strong public interest in the site. The extension was made without any formal requests for an extended public comment. Little interest has been shown for an additional extension to the public comment period. U.S. EPA does not believe an additional extension is appropriate at this time.

U.S. EPA revised its cost estimate for site cleanup after release of the proposed plan for the site. An addendum was added to the proposed plan with an updated cost estimate. The addendum was placed with the proposed plan in the public repository for site documents and was sent with the proposed plan in all freedom of

information request responses. U.S. EPA has shared its revised cost estimates as soon as they were available with all parties. The revised cost estimates were given at the public meeting in Granite City, in meetings with local officials, at availability sessions in Granite City, and were reported in the press. Cost estimates were also shared in numerous phone calls both before and after the public meeting.

The commenter's recommendation for a blood lead study has been incorporated into this Record of Decision. However, a second risk assessment would not add additional, useful information to the remedy selection process for the same reasons U.S. EPA rejected the initial risk assessment. The validity of a risk assessment depends on the reference dose used to evaluate risk. At this time, the selection of any reference dose would be arbitrary for the reasons discussed in Appendix B.